

## CLAIMS:

1. A method of detecting colorectal adenomas and cancer in a patient comprising the steps of subjecting a stool sample from the patient to infrared spectroscopy; and comparing the resulting spectrum with infrared spectra of stool from non-cancerous subjects, observed differences in spectra being indicative of cancer or clinically significant adenomas.

2. The method of claim 1, including the steps of preparing a liquid suspension of the stool samples, and subjecting the suspension to infrared spectroscopy.

3. The method of claim 2, wherein the liquid suspension is a saline suspension of the stool sample.

4. The method of claim 1, wherein the stool sample is mixed with a buffer to produce a suspension; the suspension is centrifuged to yield a supernatant; and the supernatant is subjected to infrared spectroscopy.

5. The method of claim 1, including the steps of selecting subregions from the spectra of stool that are maximally discriminatory between non-cancerous and cancerous subjects; repeatedly partitioning data thus obtained into approximately equal sized random training and test subsets; finding an optimal classifier for each random training subset; validating the accuracy of the optimal classifier on the random test subset; and determining the ultimate classifier as the weighted average of the classifier coefficients of a large number of individual component classifiers.